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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/032,147

12/31/2001

Chae Deok Lim

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12/14/2005

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EXAMINER

KANG, INSUN

ART UNIT

PAPER NUMBER

2193

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/032,147	LIM ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Insun Kang	2193	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 September 2005 and 09 June 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/20/2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date: _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____  | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. This action is in response to the amendment filed 9/20/2005 and 6/9/2005.
2. As per applicant's request, claims 1-10 have been amended and claims 11-14 have been added. Claims 1-14 are pending in the application.

### ***Drawings***

3. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because: the applicant submitted an informal drawing (the "marked-up" version). Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### ***Specification***

4. The objection to the specification has been withdrawn due to the amendment to the Specification.

### ***Claim Objections***

5. The objection to claims 5-10 has been withdrawn due to the amendment to the claims.

### ***Claim Rejections - 35 USC § 112***

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6. The objection to claims 1-10 has been withdrawn due to the amendment to the claims.

***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 1-4 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-4 are non-statutory because they are directed to a system without recitation of a computer or a computer-readable medium embodying the “dependent reader means and independent linker means” that are mere disembodied arrangements so as to be called a “computer program” or compilation of facts, information, or data *per se*, without creating any functional interrelationship, either as part of the stored data or as part of the computing processes performed by a computer (“acts”) or a computer readable medium so as to enable the system to perform the claimed instructions for “receiving a cross-compiled object file, rearranging target modules,” etc as recited. With no other structure in the independent claim to rely on, the alleged “system” of the independent claim turns out to be non-statutory for being a computer program *per se*. Thus the claims represent non-functional descriptive material that is not capable of producing a useful result, and hence represent only abstract ideas. Therefore, the claims are non-statutory.

\*Note: the term “means” is not defined in the specification, therefore, it is interpreted as “module.”

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Quong et al. (“Linking programs Incrementally,” ACM, 1991) hereinafter referred to as “Quong.”

Per claim 5:

Quong discloses:

a) at a reader module, analyzing necessary linking information for linking object files (i.e. Inlink handles ensuing link requests by incrementally updating the executable,” page 4, 4. Inlink);

b) at a linker, allocating a target memory space for sections according to a section information (i.e. “Inlink stores all segment, symbol, and relocation information in a use dependency graph,”; page 5. 4.1 Internal Representation) determining whether each entry of a symbol table is defined or not and calculating addresses of sections in a target memory (i.e. “When handling a symbol definition, we first check the undefined list. Inlink allows undefined symbols as long as they are not referenced,” page 6, 4.3

Relinking); d) determining, according to a result of said step c), whether a symbol is defined or not In case said symbol is stored in said symbol table or inserting a new symbol to the symbol table in case the symbol is not in said symbol table and determining whether the new symbol is defined or not (i.e. "When handling a symbol definition, we first check the undefined list. Inclink allows undefined symbols as long as they are not referenced," page 6, 4.3 Relinking); e) rearranging the object file if the symbol is defined or rearranging the object file after transforming a defined symbol in case the symbol is not defined; and f) transmitting the rearranged object file to the target memory ("Relocate all references from S to other symbols... Rewrite the dirty segments into the executable," page 6, 4.3 Relinking) as claimed.

Per claim 6:

The rejection of claim 5 is incorporated, and further, Quong teaches:

-a1) determining a type of cross-compiled object file; a2) analyzing the linking information by connecting a COFF reader in case said object file type is a COFF type; and a3) analyzing the linking information by connecting an ELF reader in case said object file type is an ELF type (page 5, 4.1 Internal Representation) as claimed.

Per claim 7:

The rejection of claim 5 is incorporated, and further, Quong teaches:

-d1) generating a new symbol if an entry is not stored in said symbol table and is not a defined symbol; d2) adding symbol information including a symbol name and an address of a target memory to the newly generated symbol; and d3) registering and inserting the new symbol, which is generated and the symbol information added, to the

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symbol table (i.e. "When handling a symbol definition, we first check the undefined list.

Inclink allows undefined symbols as long as they are not referenced," page 6, 4.3

Relinking ; "Relocate all references from S to other symbols...Rewrite the dirty segments into the executable," page 6, 4.3 Relinking) as claimed.

Per claim 8:

The rejection of claim 5 is incorporated, and further, Quong teaches:

- e) includes the steps of: e1) transforming the undefined symbol to the defined symbol if the symbol in the symbol table is undefined; and e2) adding an address of the target memory and the rearranging modules of a target system by using a rearrangement information of said undefined symbol (i.e. "When handling a symbol definition, we first check the undefined list. Inclink allows undefined symbols as long as they are not referenced," page 6, 4.3 Relinking ; "Relocate all references from S to other symbols...Rewrite the dirty segments into the executable," page 6, 4.3 Relinking) as claimed.

Per claim 9:

The rejection of claim 5 is incorporated, and further, Quong teaches:

-d1) bringing the rearranged symbol to said symbol table; d2) rearranging a text and data sections in a host system base on a rearrangement information of an entry and an address of the target memory of the symbol in case said brought symbol is defined; and d3) adding the rearrangement information to said symbol incase said brought symbol is undefined ("Relocate all references from S to other symbols...Rewrite the dirty segments into the executable," page 6, 4.3 Relinking) as claimed.

Per claims 1-4, they are the apparatus versions of claims 5-9, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 5-9 above.

Per claims 10-14, they are the computer-readable recording medium version of claims 5-9, respectively, and are rejected for the same reasons set forth in connection with the rejections of claims 5-9 above.

### ***Response to Arguments***

11. Applicant's arguments filed 9/20/2005 have been fully considered but they are not persuasive.

Per claim 1:

The Applicant states that: Quong discloses an incremental linker that processes only the changed modules. Quong does not disclose a reader module recited in claim 1.

In response, Quong states that the incremental linker, Inclink "uses a standard object file format and generates an executable of equal quality to that of a batch linker...the code and data segments are separate so that the code can be write-protected and shared (page 2, paragraph 3)." Quong's Inclink reads the object modules and libraries, creates the use-dependency graph, and searches libraries as necessary (page 6, 4.2. Initial Link; page 16, 6.3. Inclink Profile; (page 6, 4.2. Initial Link), and runs incrementally, only relocating and rewriting what it has to, not the entire executable (page 17, 6.4. speedup analysis). Therefore, Quong discloses the reading process.



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Accordingly, the rejection of claim1 is considered proper and maintained. If applicant means anything more, this must be brought out in the claims to further clarify the invention.

Per claims 5 and 10:

The applicant states that Quong does not disclose the limitations of claims 5 and 10, for the reasons set forth in connection with claim 1. As shown above, the rejection of claim 1 by Quong was maintained, and accordingly, the rejections of claims 5 and 10 are also maintained.

Per claims 2-4 and 6-9:

The applicant states that claims 2-4 and 6-9 are allowable as being dependent on the allowable base claims. As shown above, the rejections of the independent claims 1, 5, and 10 by Quong are maintained, the argument that claims 2-4 and 6-9 are allowable as being dependent on the allowable base claims is considered moot. Accordingly, the rejections of claims 2-4 and 6-9 are maintained.

### ***Conclusion***

**12. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

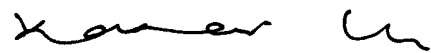
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Insun Kang whose telephone number is 571-272-3724. The examiner can normally be reached on M-F 7:30-4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on 571-272-3719. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

I. Kang  
12/7/2005

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